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Education 702.22

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**Wiki Assignment #4**

Annotated Bibliography.

1. Caleon,I. S.,&Subramaniam R.(2007). Attitudes Towards Science of Intellectually Gifted and Mainstream Upper Primary Students in Singapore. *Journal of Research in Science Teaching*. 45, 940-954. Retrieved September 22, 2009 from http://web.ebscohost.com

This research investigates the attitudes towards science of fifth and sixth grade students in three ability strands: average, above average, and gifted. The participants of this study are students from grade 5 and 6, with ages ranging from 10-12 years. The study uses three out of the five scales of the original ASI: enjoyment of science, social implications of science, and career preferences of science. The shortened instrument consists of 17 positively worded statements requiring Likert –type responses ranging from 1 = strongly disagree to 5 = strongly agree. According to the results, gender and ability effect students’ attitude towards science. Boys in general had more positive views about science than girls although the difference was small for gifted students.

2. Chanlin, L., (2008).Technology integration applied to project- based learning in science. *Innovations in Education and Teaching International*. 45, 55-65. Retrieved October 6, 2009 from <http://vnweb.hwwilsonweb.com>

This study reveals the results of a study that observed the use of technology during project based learning activities in science. Students used the computer technology for collecting information and organizing it. The study showed that all students achieved their research goal, concluding that technology helps students learn better in science.

3. Dani, D.E. (2008). Technology and Reform-Based Science Education. *Theory into Practice*.47, 204-211. Retrieved from http://www.jstor.org

This article emphasizes the importance of integration of digital technologies into science teaching, concluding that students learn science best through technologies. It provides practical examples that show how high quality technology improves science lessons.

4. Kim, P. (2006). Effects of 3D Virtual Reality of Plate Tectonics on Fifth Grade Students’Achievement and Attitude Toward Science. *Interactive Learning Environments*. 14, 25-34. Retrieved from http://www.ebscohost.com

This study focuses on advantages that high powered computers have made in teaching science. It examines the effects of 3D virtual reality simulations on fifth grade student’s tests and attitudes toward science, compared to traditional 2D instructional material with the same topics. The study

revealed that 2D group scored higher on the achievement test than the group using traditional 2D materials.

5. Sorge, C. (2007). What Happens? Relationship of Age and Gender with Science Attitudes from Elementary to Middle School. *Science Educator*.16, 33-37.Retrieved September 27, 2009 from http://web.ebscohost.com

 This study examines the attitudes of 1008 elementary and middle school students from ages 9-14. The students are located in a rural of New Mexico. The data is collected from a school based science program from 2003-2005 at the beginning of each fall semester. The Science Attitude scale consists of 10 items tailored to evaluate students’ feelings and attitudes about science such as “Science is fun”, “I would like to learn more about science” and so on. The study brings evidence that a major drop in science attitudes takes place between elementary school and middle school. The relationship of age on attitude toward science was significant, while gender factor was less significant.

6. Spelke, E.S. (2005). Sex Differences in Intrinsic Aptitude for Mathematical and Science? *American Psycologist*. 60, 950-958.Retrieved September 26, 2009 from http://web.ebscohost.com

This article examines claims for sex differences in intrinsic aptitude for mathematics and science. These claims consist on the idea that boys and girls are predisposed from birth to learn about different things and boys exhibit higher talent in mathematics and science. Also, boys have a profile of spatial and numerical abilities producing greater aptitude for mathematics, and, lastly, boys show greater variability in inherent mathematical talent. This review concludes that research on cognitive abilities of males and females, from birth to maturity does not support the above claims. Even though the article agree with the fact that there are more male than female scientists, it, also, brings evidence that men and woman show equal talent for mathematics and science, concluding that gender differences has more social causes. The article invites you to look beyond cognitive ability to other aspects of human biology and society for better explanation of this phenomenon.

 7. Thomson, S. (2008), Examining the evidence from TIMSS: Gender differences in Year 8 science achievement in Australia. *Studies in Education Evaluation*. 34, 73-81.Retrieved September 27, 2009 from http://web.ebscohost.com

This article examines gender differences in science achievement in the early stages of secondary schooling in Australia using data from the TIMSS 2003 study. Data for this study was collected in Australia, in 2002. 5355 students in 210 schools participated in the TIMSS testing, and 536 science teachers and 192 principals completed school questionnaires. It concludes that gender differences in science were not evident in the early years of TIMSS but appeared to be growing. By first years of secondary school, girls were outscored by boys in all of the science content areas. They also had lower self-confidence in science than boys.

8. Tsarabi, A. B.,Seithi, R.J.,Bry,L.,&Yarden,A. (2009).Asking Scientists: A Decade of Questions Analyzed by Age, Gender, and Country. *Science Education*. 93, 131-160. Retrieved September 23, 2009 from http://web.ebscohost.com

This journal discusses youth interest in science. It analyzes nearly 79,000 questions collected in ten years to learn about the interactions between age, gender, country of origin, and interests in science. The study brings a surprising dominance of girls’ contributions among K-12 students, while offline situations are commonly characterized by boys’ greater interest in science. However girl’s interest in submitting questions to scientists dropped as they grew older relative to the boy’s interest. Since the Internet is a free- choice science learning environment, it plays a democratic role especially to countries that are traditionally deprived of equal opportunities in learning science.

9. Yanowitz,K.L.& Vanderpool,S.S. (2004), Assessing Girls’ Reactions to Science Workshops.  Thomson,S. (2008),Examining the evidence from TIMSS: Gender differences in Year 8 science achievement in Australia. *Studies in Education Evaluation*. 34, 73-81.Retrieved September 27, 2009 from http://web.ebscohost.com

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10. Zucker, A.A., Tinker, R.,Standt, C., Mansfield A., Metcalf, Sh., (2008). *Journal in Science* *Education.* 17, 42-48. Retrieved October 5, 2009 from http://vnweb.hwwilsonweb.com

This study reports on the effect of technologies in teaching science. The Technology Enhanced Elementary and Middle School Science project (TEEMSS), prepared 15 science inquiry based instructional science units for teaching in grades 3-8. Computer and probeware are used for teaching each unit. The study shows that there were significant differences in science learning in four units, favoring the students who used the TEEMSS materials. In the other four units there were no differences between students who used TEEMSS and to nonTEEMSS.